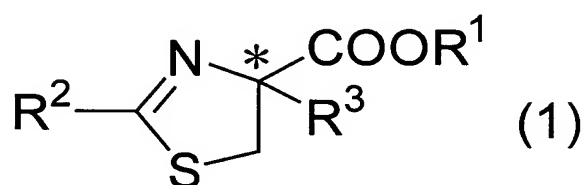


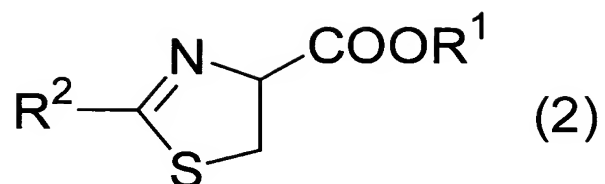
CLAIMS

1. A process for producing an optically active thiazoline compound represented by general formula (1):



(where * represents an asymmetric carbon atom; R¹ represents an optionally substituted linear, branched, or cyclic C₁-C₁₀ alkyl group or an optionally substituted linear, branched, or cyclic C₁-C₁₀ alkylsilyl group; R² represents an optionally substituted C₆-C₃₀ aryl group or an optionally substituted linear, branched, or cyclic C₁-C₂₀ alkyl group; and R³ represents an optionally substituted linear, branched, or cyclic C₁-C₂₀ alkyl group, an optionally substituted linear, branched, or cyclic C₂-C₂₀ alkenyl group, an optionally substituted linear, branched, or cyclic C₂-C₂₀ alkynyl group, an optionally substituted linear, branched, or cyclic C₃-C₂₀ alkoxy carbonylalkyl group, an optionally substituted C₇-C₃₀ aralkyl group, or an optionally substituted C₄-C₃₀ heteroaralkyl group), the process comprising a step of allowing a thiazoline compound represented by general

formula (2):

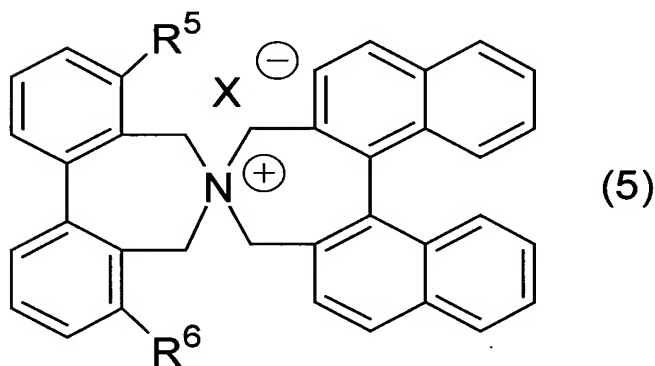
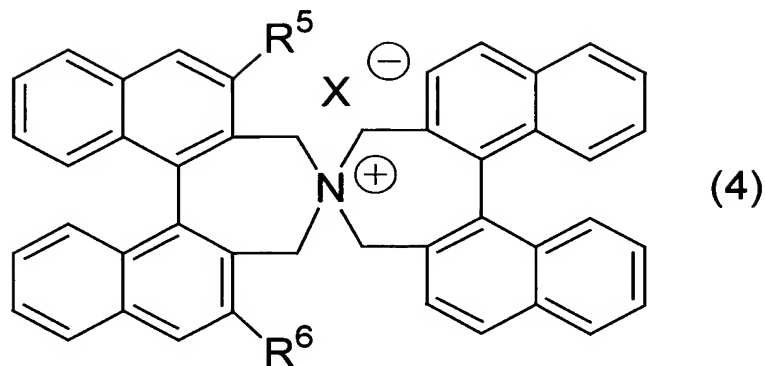


5 (where R¹ and R² are the same as above) to react with a compound represented by general formula (3) in the presence of a base and an optically active quaternary ammonium salt functioning as a catalyst:



10 (R³ is the same as above; and L represents a leaving group).

2. The process according to Claim 1, wherein the optically active quaternary ammonium salt is an optically active axially asymmetric quaternary ammonium salt
15 represented by general formula (4) or general formula (5):



(where R⁵ and R⁶ each represent a hydrogen atom, an
 5 optionally substituted linear, branched, or cyclic C₁-C₂₀
 alkyl group, an optionally substituted linear, branched, or
 cyclic C₂-C₂₀ alkenyl group, an optionally substituted linear,
 branched, or cyclic C₂-C₂₀ alkynyl group, an optionally
 substituted C₆-C₃₀ aryl group, an optionally substituted C₃-C₃₀
 10 heteroaryl group, an optionally substituted C₇-C₃₀ aralkyl
 group, an optionally substituted C₄-C₃₀ heteroaralkyl group,
 an optionally substituted linear, branched, or cyclic C₁-C₁₅
 alkanoyl group, or a C₇-C₃₀ aroyl group having an optionally

substituted aromatic ring, and R⁵ and R⁶ may be the same or different; and X represents a hetero atom or atomic group having ability to function as a counter anion to the ammonium cation.)

5

3. The process according to Claim 2, further comprising steps of, after the reaction, isolating and recovering the optically active axially asymmetric quaternary ammonium salt represented by formula (4) or (5) from the reaction mixture
10 by column chromatography using a column packed with an adsorbent, and then reusing the recovered salt.

4. The process according to Claim 2 or 3, wherein R⁵ and R⁶ in formulae (4) and (5) each represent an optionally
15 substituted phenyl group, an optionally substituted naphthyl group, an optionally substituted anthryl group, an optionally substituted phenanthryl group, or an optionally substituted terphenyl group.

20 5. The process according to any one of Claims 2 to 4, wherein R⁵ and R⁶ in formulae (4) and (5) represent the same group.

6. The process according to any one of Claims 2 to 5,
25 wherein, in formulae (4) and (5), each X represents a

halogen atom.

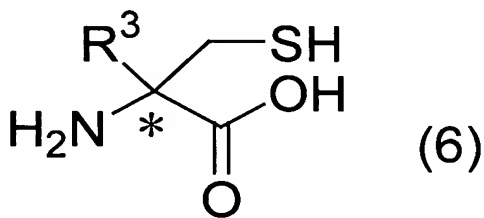
7. The process according to any one of Claims 1 to 6,
wherein R¹ represents a methyl group, an ethyl group, an *n*-
5 propyl group, an isopropyl group, an *n*-butyl group, a *sec*-
butyl group, or a *tert*-butyl group.

8. The process according to any one of Claims 1 to 7,
wherein R² represents an optionally substituted phenyl group.
10

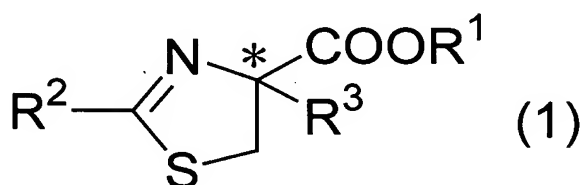
9. The process according to any one of Claims 1 to 8,
wherein R³ represents a methyl group, an ethyl group, an
allyl group, a propargyl group, or a benzyl group.

15 10. The process according to any one of Claims 1 to 9,
wherein L in formula (3) represents a halogen atom.

11. A process for producing an optically active α -
substituted cysteine represented by general formula (6) or a
20 salt thereof:



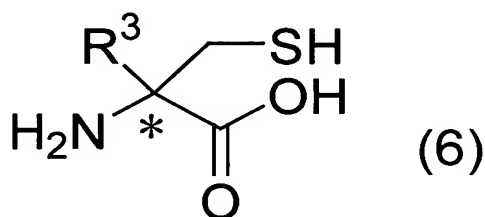
(where * represents an asymmetric carbon atom; and R³ represents an optionally substituted linear, branched, or cyclic C₁-C₂₀ alkyl group, an optionally substituted linear, branched, or cyclic C₂-C₂₀ alkenyl group, an optionally substituted linear, branched, or cyclic C₂-C₂₀ alkynyl group, an optionally substituted linear, branched, or cyclic C₃-C₂₀ alkoxy carbonylalkyl group, an optionally substituted C₇-C₃₀ aralkyl group, or an optionally substituted C₄-C₃₀ heteroaralkyl group), the process comprising a step of hydrolyzing an optically active thiazoline compound produced by the process according to any one of Claims 1 to 10, the thiazoline compound being represented by general formula (1):



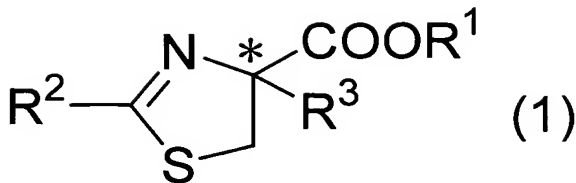
(where * and R³ are the same as above; R¹ represents an optionally substituted linear, branched, or cyclic C₁-C₁₀ alkyl group or an optionally substituted linear, branched, or cyclic C₁-C₁₀ alkylsilyl group; and R² represents an optionally substituted C₆-C₃₀ aryl group or an optionally

substituted linear, branched, or cyclic C₁-C₂₀ alkyl group).

12. A process for producing an optically active α-substituted cysteine represented by general formula (6) or a salt thereof:



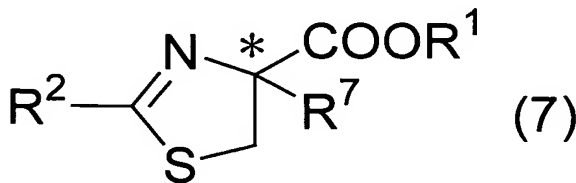
(where * represents an asymmetric carbon atom; and R³ represents an optionally substituted linear, branched, or cyclic C₁-C₂₀ alkyl group, an optionally substituted linear, branched, or cyclic C₂-C₂₀ alkenyl group, an optionally substituted linear, branched, or cyclic C₂-C₂₀ alkynyl group, an optionally substituted linear, branched, or cyclic C₃-C₂₀ alkoxy carbonylalkyl group, an optionally substituted C₇-C₃₀ aralkyl group, or an optionally substituted C₄-C₃₀ heteroaralkyl group), the process comprising a step of hydrolyzing an optically active thiazoline compound represented by general formula (1):



(where * and R³ are the same as above; R¹ represents an optionally substituted linear, branched, or cyclic C₁-C₁₀ alkyl group or an optionally substituted linear, branched, or cyclic C₁-C₁₀ alkylsilyl group; and R² represents an optionally substituted C₆-C₃₀ aryl group or an optionally substituted linear, branched, or cyclic C₁-C₂₀ alkyl group).

10 13. The process according to Claim 11 or 12, wherein an
acid is used for the hydrolysis.

14. An optically active thiazoline compound represented by general formula (7):



(where * represents an asymmetric carbon atom; R¹ represents an optionally substituted linear, branched, or cyclic C₁-C₁₀

alkyl group or an optionally substituted linear, branched, or cyclic C₁-C₁₀ alkylsilyl group; R² represents an optionally substituted C₆-C₃₀ aryl group or an optionally substituted linear, branched, or cyclic C₁-C₂₀ alkyl group; and R⁷

5 represents an optionally substituted linear, branched, or cyclic C₂-C₂₀ alkyl group, an optionally substituted linear, branched, or cyclic C₂-C₂₀ alkenyl group, an optionally substituted linear, branched, or cyclic C₂-C₂₀ alkynyl group, an optionally substituted linear, branched, or cyclic C₃-C₂₀
10 alkoxycarbonylalkyl group, an optionally substituted C₇-C₃₀ aralkyl group, or an optionally substituted C₄-C₃₀ heteroaralkyl group).

15 15. The compound according to Claim 14, wherein R¹ represents a methyl group, an ethyl group, an *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, or a *tert*-butyl group.

20 16. The compound according to Claim 14 or 15, wherein R² represents an optionally substituted phenyl group.

25 17. The compound according to Claim 14, 15, or 16, wherein R⁷ represents an ethyl group, an *n*-propyl group, an isopropyl group, an *n*-butyl group, a *sec*-butyl group, a *tert*-butyl group, a pentyl group, a hexyl group, a

cyclopropylmethyl group, a cyclopentylmethyl group, a cyclohexylmethyl group, an allyl group, a 2-butenyl group, a 1-methyl-2-propenyl group, a 2-methyl-2-propenyl group, a propargyl group, a *tert*-butoxycarbonylmethyl group, a benzyl
5 group, a chlorobenzyl group, a fluorobenzyl group, a bromobenzyl group, a dichlorobenzyl group, a difluorobenzyl group, a dibromobenzyl group, a methylbenzyl group, a methoxybenzyl group, a 3,4-dibutoxybenzyl group, a naphthylmethyl group, or an indolylmethyl group.